permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR §122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR §122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR §122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR §122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the Regional Water Board as soon as they know or have reason to believe (40 CFR §122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR §122.42(a)(1)):

    a. 100 micrograms per liter (µg/L) (40 CFR §122.42(a)(1)(i));

    b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR§ 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR §122.42(a)(1)(iii)); or

d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 CFR §122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR §122.42(a)(2)):

   a. 500 micrograms per liter (µg/L) (40 CFR §122.42(a)(2)(i));

   b. 1 milligram per liter (mg/L) for antimony (40 CFR §122.42(a)(2)(ii));

   c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR §122.42(a)(2)(iii)); or

   d. The level established by the Regional Water Board in accordance with section 122.44(f). (40 CFR §122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations section 122.48 requires that all NPDES permits specify monitoring and reporting requirements. Water Code Sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements, which implement the federal and state regulations.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of this Regional Water Board.

B. Chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. In the event a certified laboratory is not available to the Discharger, analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program must be kept in the laboratory and shall be available for inspection by Regional Water Board staff. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Regional Water Board.

C. All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services. Laboratories that perform sample analyses shall be identified in all monitoring reports.

D. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.

II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description (include Latitude and Longitude when available)
--	INF-001	A location where a representative sample of the influent to the ion-exchange system can be collected prior to any treatment processes
--	INF-002	A location where a representative sample of the influent to the electrochemical and precipitation system can be collected prior to any treatment processes
001	EFF-001	A location representative of the final effluent from the treated groundwater
--	RSW-001	Approximately 7500 feet upstream from the point of discharge at the Main Street Bridge station
--	RSW-002	Approximately 1450 feet downstream from the point of discharge at the Fremont Street Bridge station

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations INF-001 and INF-002

1. The Discharger shall monitor influent to the ion-exchange and electrochemical and precipitation systems at Monitoring Locations INF-001 and INF-002 as follows:

Table E-2. Influent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids (TDS)	mg/L	Grab	1/Quarter	[1]
Chromium, Total Recoverable	µg/L	Grab	1/Quarter	[1]
Copper, Total Recoverable	µg/L	Grab	1/Quarter	[1]
Arsenic, Total Recoverable	µg/L	Grab	1/Quarter	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

2. Influent samples shall be representative of the influent to each system for the period sampled. Where applicable, the influent shall be collected at approximately the same time as the effluent samples.

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Location EFF-001

1. The Discharger shall monitor treated groundwater at EFF-001 representing effluent discharged through Discharge Point No. 001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding minimum level:

Table E-3. Effluent Monitoring

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	mgd	Meter	Continuous	[1]
Conventional Pollutants				
pH[5]	standard units	Grab	1/Month	[1]
Total Suspended Solids	mg/L	Grab	1/Month	[1]
Priority Pollutants				
Arsenic, Total Recoverable	µg/L	Grab	1/Month	[1, 2]
Copper, Total Recoverable	µg/L	Grab	1/Month	[1, 2]
Chromium (VI)	µg/L	Grab	1/Month	[1, 2]
TCDD-equivalents[3, 4]	µg/L	Grab	[4]	[1, 2]
Remaining Priority Pollutants [6]	µg/L	Grab	[7]	[1, 2]
Non-Conventional Pollutants				
Chromium, Total Recoverable	µg/L	Grab	1/Month	[1]
Dissolved Oxygen[5]	mg/L	Grab	1/Month	[1]
Electrical Conductivity @ 25°C[5]	µmhos/cm	Grab	1/Month	[1]
Temperature[5]	°F	Grab	1/Month	[1]
Total Dissolved Solids	mg/L	Grab	1/Month	[1]
Hardness (as $CaCO_3$)	mg/L	Grab	1/Month	[1]
Turbidity	NTU	Grab	1/Month	[1]
Iron, Total Recoverable	µg/L	Grab	1/Quarter	[1]

[1] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

[2] For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the SIP is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.

[3] TCDD-Dioxin Congener Equivalents shall include all 17 of the 2,3,7,8 TCDD-dioxin congeners.

[4]. TCDD-equivalents shall be sampled twice during the third year following the date of permit adoption – once during dry weather and once during wet weather.

[5] Field measurements.

[6] Clean technique shall be used for phthalates and mercury sampling.

[7] Priority pollutants shall be sampled once during the third year following the date of permit adoption and shall be conducted concurrently with effluent monitoring for hardness (as $CaCO_3$) and pH

2. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

A. **Acute Toxicity Testing.** The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. *Monitoring Frequency* – The Discharger shall perform quarterly acute toxicity testing.

2. *Sample Types* – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at effluent monitoring location EFF-001.

3. *Test Species* – Test species shall be fathead minnows (*Pimephales promelas*).

4. *Methods* – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, ammonia, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.

5. *Test Failure* – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

B. **Chronic Toxicity Testing**. The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. *Monitoring Frequency* –The Discharger shall perform quarterly three species chronic toxicity testing.

2. *Sample Types* – Effluent samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at effluent monitoring location EFF-001. The receiving water control shall be a grab sample obtained from the RSW-001 sampling location, as identified in the Monitoring and Reporting Program.

3. *Sample Volumes* – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.

4. *Test Species* – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent

compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:

- The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
- The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
- The green alga, *Selenastrum capricornutum* (growth test).

5. *Methods* – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition,* EPA/821-R-02-013, October 2002.

6. *Reference Toxicant* – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.

7. *Dilutions* – The chronic toxicity testing shall be performed using 100% effluent and two controls. If toxicity is found in any effluent test, the Discharger must immediately retest using the dilution series identified in Table E-4, below. The receiving water control shall be used as the diluent unless the receiving water is toxic or is dry upstream of the discharge.

8. *Test Failure* –The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:

   a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

   b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in Special Provisions VI.C.2.a.iii.)

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	50	25	12.5	6.25	Receiving Water	Laboratory Water
% Effluent	100	50	25	12.5	6.25	0	0
% Receiving Water	0	50	75	87.5	93.75	100	0
% Laboratory Water	0	0	0	0	0	0	100

C. **WET Testing Notification Requirements.** The Discharger shall notify the Regional Water Board within 24-hrs after the receipt of test results exceeding the monitoring

trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

D. **WET Testing Reporting Requirements**. All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Regional Water Board within 30 days following completion of the test, and shall contain, at minimum:

   a. The results expressed in TUc, measured as 100/NOEC, and also measured as $100/LC_{50}$, $100/EC_{25}$, $100/IC_{25}$, and $100/IC_{50}$, as appropriate.

   b. The statistical methods used to calculate endpoints;

   c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);

   d. The dates of sample collection and initiation of each toxicity test; and

   e. The results compared to the numeric toxicity monitoring trigger.

   Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or TRE.

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.

3. **TRE Reporting.** Reports for Toxicity Reduction Evaluations shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Work Plan.

4. **Quality Assurance (QA).** The Discharger must provide the following information for QA purposes (if applicable):

   a. Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.

   b. The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.

   c. Any information on deviations or problems encountered and how they were dealt with.

VI. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE

VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

A. Monitoring Location RSW-001 and RSW-002

1. The Discharger shall monitor the Stockton Diverting Canal at RSW-001 and RSW-002 as follows:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow[3, 6]	cfs	Grab	1/Month	[5]
pH[4]	standard units	Grab	1/Month	[5]
Electrical Conductivity @25°C[4]	µmhos/cm	Grab	1/Month	[5]
Dissolved Oxygen[4]	mg/L	Grab	1/Month	[5]
Temperature[4]	°F	Grab	1/Month	[5]
Chromium (Total Recoverable)	µg/L	Grab	1/Quarter	[1, 5]
Chromium (VI)[1]	µg/L	Grab	1/Quarter	[1, 5]
Copper (Total Recoverable)[1]	µg/L	Grab	1/Quarter	[1, 5]
Arsenic (Total Recoverable)[1]	µg/L	Grab	1/Quarter	[1, 5]
TCDD-equivalents[6]	µg/L	Grab	[8]	[1, 5]
Remaining Priority Pollutants[6]	µg/L	Grab	[7]	[1, 5]
Total Dissolved Solids	mg/L	Grab	1/Quarter	[5]
Hardness (as $CaCO_3$)[2]	mg/L	Grab	1/Quarter	[5]
Total Suspended Solids	mg/L	Grab	1/Quarter	[5]
Total Organic Carbon	mg/L	Grab	1/Quarter	[5]
Turbidity	NTU	Grab	1/Quarter	[5]

[1] At a minimum the Discharger shall comply with the Monitoring Requirements for these constituents as outlined in Section 2.3 and 2.4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), adopted 2 March 2000 by the State Water Resources Control Board. For each priority pollutant use an analytical method from the SIP, Appendix 4 with a Minimum Level (ML) below all applicable pollutant criteria. In accordance with Section 2.4.2 of the SIP, the Discharger is to instruct the laboratory analyzing samples for priority pollutants to establish calibration standards so that the ML is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve. Report all peaks identified by the EPA test methods.

[2] Concurrent with priority pollutant metals analyses.

[3] Estimate of receiving water flow, recorded for each day of sample collection. Use nearby gauging station if available.

[4] Field measurements.

[5] Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

[6] Monitoring is a requirement for upstream receiving water (RSW-001) only. Clean techniques shall be used for phthalate and mercury sampling

[7] Priority pollutants shall be sampled once during the third year following the date of permit adoption and shall be conducted concurrently with effluent monitoring for hardness (as $CaCO_3$) and pH.

[8] TCDD-equivalents shall be sampled twice during the third year following the date of permit adoption – once during dry weather and once during wet weather.

IX. OTHER MONITORING REQUIREMENTS – NOT APPLICABLE

X. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. Upon written request of the Regional Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).

3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Regional Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the compliance time schedule.

4. The Discharger shall report to the Regional Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986.

5. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in Part 136.

   The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve.

6. **Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

B. Self Monitoring Reports (SMRs)

1. At any time during the term of this permit, the State or Regional Water Board may notify the Discharger to electronically submit Self-Monitoring Reports (SMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (http://www.waterboards.ca.gov/ciwqs/index.html). Until such notification is given, the Discharger shall submit hard copy SMRs. The CIWQS Web site will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal.

2. Monitoring results shall be submitted to the Regional Water Board by the **first day** of the second month following sample collection. Quarterly and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

3. In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, and removal efficiencies (%) for BOD and Total Suspended Solids, shall be determined and recorded as needed to demonstrate compliance.

4. With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily

averages; flow shall be reported as the total volume discharged per day for each day of discharge.

5. If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

6. A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

7. SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

   Regional Water Quality Control Board
   Central Valley Region
   11020 Sun Center Dr., Suite #200
   Rancho Cordova, CA 95670-6114

8. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	First day of second calendar month following month of sampling
1/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	First day of calendar month through last day of calendar month	First day of second calendar month following month of sampling
1/Quarter	Closest of 1 January, 1 April, 1 July, or 1 October following (or on) permit effective date	1 January through 31 March 1 April through 30 June 1 July through 30 September 1 October through 31 December	1 May 1 August 1 November 1 February

C. Discharge Monitoring Reports (DMRs)- NOT APPLICABLE

D. Other Reports

1. Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported.

2. **Annual Operations Report**. By **1 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

   a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.

   b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

   c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

   d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

   e. The Discharger may also be requested to submit an annual report to the Regional Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

3. The Discharger shall submit, in addition to the groundwater monitoring report for the last sampling event of the year, an annual evaluation report of the groundwater quality beneath the site and surroundings, hydraulic capture analysis, cleanup progress, discussion of any data gaps and potential deficiencies in the monitoring system, treatment system performance, and any recommendations to potentially accelerate site cleanup progress or any modifications to enhance cleanup.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	5B392058001
Discharger	SPX Corporation
Name of Facility	SPX Marley Cooling Technologies
Facility Address	200 North Wagner Avenue Stockton, California 95215 San Joaquin County
Facility Contact, Title and Phone	Jim Lingo, Plant Operator, (209) 465-3451 x239
Authorized Person to Sign and Submit Reports	Jim Lingo, Plant Operator, (209) 465-3451 x239
Mailing Address	SAME
Billing Address	SAME
Type of Facility	Groundwater remediation (SIC Code 4959)
Major or Minor Facility	Minor
Threat to Water Quality	1
Complexity	A
Pretreatment Program	N
Reclamation Requirements	N/A
Facility Permitted Flow	0.94 million gallons per day (mgd)
Facility Design Flow	0.94 mgd
Watershed	Calaveras River Watershed
Receiving Water	Stockton Diverting Canal
Receiving Water Type	Inland Surface Water

A. SPX Marley Cooling Technologies (formerly Marley Cooling Tower Company) is the operator of an industrial groundwater extraction and treatment facility (hereinafter referred to as the Facility). SPX Corporation (hereinafter referred to as the Discharger)

owns the property at 200 North Wagner Avenue, Stockton, California 95215 on which the Facility is located.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. The Facility discharges wastewater to the Stockton Diverting Canal, a water of the United States and a tributary to the Calaveras River, and is currently regulated by Order R5-2003-0030, which was adopted on 13 March 2003 and expired on 1 March 2008. The terms and conditions of the current Order have been automatically continued and remain in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit are adopted pursuant to this Order.

C. The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 30 August 2007. Supplemental information was requested on 15 April 2008 and received on 30 June 2008. A site visit was conducted on 24 April 2008 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

The Discharger owns and operates a groundwater extraction and treatment system in the East Stockton Area of San Joaquin County. The Discharger previously operated a cooling tower fabrication plant at the site that included a wood preservation process using solutions containing copper, chromium and arsenic. Wood preserving was discontinued at this site in January 1991; however, past operational practices have resulted in contamination of soils and groundwater underlying the site. Soils have been contaminated with copper, chromium, and arsenic; groundwater has been contaminated with chromium and copper.

On 28 November 1984 the Regional Water Board ratified a Settlement Agreement among the Department of Health Services (now Department of Toxic Substances Control (DTSC)), the Discharger, and the Regional Water Board. This Settlement Agreement required the Discharger to conduct a Remedial Investigation/Feasibility Study (RI/FS) to define the extent of contamination, to develop a Remedial Action Plan (RAP), and to implement all measures necessary to remediate existing site contamination. Following discussions with Regional Water Board staff, DTSC formally adopted the RAP on 29 August 1990. The RAP included the conceptual design of the groundwater remediation project, and the recommended groundwater remedial action for the extraction, treatment, and discharge of contaminated groundwater.

A groundwater pilot study, including calcium polysulphate and ethanol injection, was initiated in June 2003 at the site to evaluate the effectiveness of in-situ reduction as a means to address mobile, chromium (VI) in the subsurface. The pilot study was conducted under Order No. R5-2003-0100. The DTSC is the lead agency for the site clean up. In June 2007, DTSC issued a final RAP amendment that concluded that the

pilot study successfully demonstrated the efficacy of in-situ Cr VI reduction, and authorized the full-scale implementation of the in-situ treatment at the site. The use of this treatment method is expected to clean up the groundwater in about 3 years rather than the currently estimated 17-year clean up time for the existing pump and treat system. The WDRs for the protection of groundwater are being implemented under a separate Order No. R5-2007-0126.

A. Description of Wastewater and Biosolids Treatment or Controls

The treatment system at the Facility consists of an electrochemical reduction and precipitation unit operating in parallel to an ion exchange treatment system. The ion exchange system consists of two anion exchange vessels and a cation exchange vessel. In the anion exchange vessels, chromium (VI) in the water is adsorbed onto the ion exchange resins. In the cation exchange vessel, trivalent chromium and copper are adsorbed. The exchange process continues until the resin's exchange sites are filled and exchange capacity is exhausted. The adsorbed wood treating chemicals are stripped from the ion exchange resins and the resins are conditioned for additional water treatment in a process called regeneration. During regeneration, which occurs approximately every 2.5 days, 15,000 gallons of solution containing the stripped chemicals is removed from the ion exchange system and processed through the electrochemical unit. A process flow diagram for the ion exchange system is shown in Attachment C (Figure C-2).

The electrochemical unit consists of an electrochemical reduction (Andco) and precipitation process that uses iron as the reducing agent for the chromium (VI) followed by iron co-precipitation using pH adjustments. The addition of polymers and further pH adjustments are used to optimize settling. The effluent is then filtered prior to discharge. The solids from the clarifier are pumped and accumulated in a filter press. The filter press filtrate and mixed media filter backwash are returned to the treatment plant for further treatment. Filter press cake has been characterized as a California hazardous waste, and is collected in roll off bins for off-site disposal. A process flow diagram for the electrochemical precipitation system is shown in Attachment C (Figure C-3).

The site is divided into two areas, the North Yard and the South Yard. All past wood treatment activities were conducted on the North Yard. Rain falling on the North Yard becomes contaminated after contact with treated cooling tower components. This contaminated rainwater is collected in a storm drain system and is passed through the treatment plant in the northeast portion of the site. Due to the past practice of storing treated wood products on the South Yard, some wood treating chemicals had been detected in the storm water runoff there. The South Yard surface has been cleaned and residual contamination in pipes and ditches removed as part of the remedial actions undertaken by the Discharger.

Additionally, when sufficient storm water is accumulated on the North Yard to justify treatment, the operator will manually initiate storm water treatment through the Andco system. Groundwater from selected wells will simultaneously be delivered to the ion exchange treatment system.

The groundwater treatment facility is designed to treat a maximum flow up to 0.94 mgd. Groundwater is extracted from approximately 13 operative extraction wells on and off-site. The groundwater extraction system can operate in a cyclical fashion with each of the two cycles lasting 56 hours or on a continuous basis with all extraction wells pumping at rates varying from 10 to 90 gallons per minute depending on effective capture of the groundwater contamination plume. When cycling, primary groundwater extraction is alternated between the north zone and the area south of the site. Water extracted from the north zone has higher contaminant concentrations. During south zone pumping, the capacity of the treatment plant is not fully utilized unless supplemental waste sources are added. Flushing water may be added to supplement the groundwater contaminant concentrations. A process flow diagram for the groundwater extraction and equalization is shown in Attachment C (Figure C-4). Additionally, symbols, an instrument legend, and definitions for all of the systems flow diagrams are shown in Attachment C (Figure C-5).

B. Discharge Points and Receiving Waters

1. The Facility is located in Section 32, T2N, R7E, MDB&M, as shown in Attachment B, a part of this Order.

2. Treated ground wastewater is discharged at Discharge Point No. 001 to the Stockton Diverting Canal, a water of the United States and a tributary to the Calaveras River at a point Latitude 37°, 58', 19" N and longitude 121°, 13', 34" W.

3. The Upper Mormon Slough drainage course originates from the Calaveras River near Bellota then flows west-southwest from Bellota, south of the Calaveras River. The Stockton Diverting Canal is an engineered drainage which re-connects Upper Mormon Slough to the Calaveras River on the east side of Stockton. From approximately October to April each year, the East Stockton Water District dams the Calaveras River at its fork with Upper Mormon Slough, diverting flows through Upper Mormon Slough and the Stockton Diverting Canal.

4. From approximately April to October each year, flows are split between the Calaveras River and Upper Mormon Slough. A series of check dams are installed along the Calaveras River, Upper Mormon Slough, and the Stockton Diverting Canal to provide irrigation water for adjacent farmers. During this time, there are periods of limited or no flow in the Stockton Diverting Canal.

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in the existing Order for discharges from Outfall 001 (Monitoring Location 001) and representative monitoring data from the term of the previous Order are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation		Monitoring Data (From June 2003 – To September 2007)	
		Average Monthly	Maximum Daily	Highest Average Monthly Discharge	Highest Daily Discharge
Flow	mgd	0.72	0.94	0.75[9]	0.75[9]
pH	pH units	Range of 6.5 to 8.5[7]		Range 6.6 to 7.86	
Acute Toxicity	% Survival	[8]		Minimum of 98%	
Copper, Total	µg/L	3.3[3]	--	3.65	7.3
	lbs/day	0.02[2,3]	--	[5]	[5]
Chromium, Total	µg/L	50	--	17	17
	lbs/day	0.3[2]	--	[5]	[5]
Chromium (VI)	µg/L	8.0	16	3.4	3.4
	lbs/day	0.05[2]	0.13[1]	[5]	[5]
Arsenic, Total	µg/L	10	--	8	8
	lbs/day	0.06[2]	--	[5]	[5]
Total Dissolved Solids	mg/L	500[4]	1000	910	910
	lbs/day	3002[2,4]	7840[1]	[5]	[5]
Chlorine, Total Residual	mg/L	0.01	0.02	[6]	[6]
	lbs/day	0.12[2]	0.08[1]	[5]	[5]

1 Based upon maximum daily design treatment capacity of 0.94 mgd.

2 Based upon monthly average flow limitation of 0.72 mgd.

3 At 44 mg/L hardness as $CaCO_3$ upstream in the Stockton Diverting Canal (SDC). At other hardness values, use Attachment D or adjust copper criterion from CTR in accordance with 40 CFR 131.38(b)(2). If there is no flow in the SDC, use effluent hardness values. Use adjusted criterion as Effluent Concentration Allowance (ECA) and calculate the average monthly and daily maximum effluent limitations in accordance with the SIP Section 1.4.

4 Order R5-2003-0030 established a new AMEL of 500 mg/L effective 1 February 2008. However, TSO No. R5-2008-0011, which is still in effect, provides interim requirements and includes a final compliance date of 1 February 2012.

5 Not reported.

6 Not detected. MDL = 0.02.

7 Instantaneous minimum to instantaneous maximum.

8 Minimum for any one bioassay is 70% and median for any three or more consecutive bioassays is 90%.

9 Flow calculated by dividing reported monthly flow by highest number of days any one system operated in the month.

D. Compliance Summary

The following compliance summary applies to the Facility during the term of Order No. R5-2003-0030.

1. Based on monitoring data collected during the term of Order No. R5-2003-0030, the average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) for copper were exceeded in May 2004 and October 2007, however, all other reported results have been below the established limitations. In addition, the

Discharger periodically exceeded the established limitation for TDS. Monitoring data for chromium, chromium (VI), arsenic, and total residual chlorine indicate the Discharger was in compliance with the established limitations.

E. Planned Changes – NOT APPLICABLE

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in section II of the Limitations and Discharge Requirements (Findings). This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

A. Legal Authority

See Limitations and Discharge Requirements - Findings, Section II.C.

B. California Environmental Quality Act (CEQA)

See Limitations and Discharge Requirements - Findings, Section II.E.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans**. The Regional Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised February 2007), for the Sacramento and San Joaquin River Basins* (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, State Water Board Resolution No. 88-63 requires that, with certain exceptions, the Regional Water Board assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in the Basin Plan. The beneficial uses of the Calaveras River from New Hogan Reservoir to the Delta, which the Stockton Diverting Canal is a tributary, are municipal and domestic supply (MUN), agricultural supply (AGR), water contact recreation, canoeing, and rafting (REC-1), other non-contact water recreation (REC-2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), warm and cold migration of aquatic organisms (MIGR), warm and cold spawning, reproduction, and/or early development (SPWN), and wildlife habitat (WILD). Industrial process supply (PRO) and industrial service supply (IND) are identified as a potential beneficial uses.

   The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*" and with respect to disposal of wastewaters states that "*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*"

   The federal CWA section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and*

propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983." Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

The Basin Plan at page II-2.00 states that: "*Existing and potential beneficial uses that currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams.*" The Basin Plan does not specifically identify beneficial uses for the Stockton Diverting Canal, but the Basin Plan does identify present and potential uses for the Calaveras River, to which the Stockton Diverting Canal is tributary. In reviewing whether the existing and/or potential beneficial uses of the Calaveras River apply to the Stockton Diverting Canal, the Board has considered the following facts:

a. *Domestic Supply and Agricultural Supply*

The Regional Water Board is required to apply the beneficial uses of municipal and domestic supply to the Stockton Diverting Canal based on State Board Resolution No. 88-63 which was incorporated into the Basin Plan pursuant to Regional Water Board Resolution 89-056. In addition, the State Water Board has issued water rights to existing water users along Stockton Diverting Canal and the Calaveras River downstream of the discharge for domestic and irrigation uses. As noted above, municipal and domestic supply are identified as an existing beneficial use of the Calaveras River, with which the Stockton Diverting Canal exchanges water.

b. *Water Contact and Non-Contact Recreation and Esthetic Enjoyment*

The Board finds that the discharge flows through residential areas, and there is ready public access to the Stockton Diverting Canal and the Calaveras River. Exclusion of the public is unrealistic and contact recreational activities currently exist along the Stockton Diverting Canal, the Calaveras River, and downstream waters and these uses are likely to increase as the population in the area grows.

c. *Groundwater Recharge*

In areas or at times when groundwater elevations are below the Stockton Diverting Canal and/or Calaveras River bottom, water from the river will percolate to

groundwater. Since flow in the Stockton Diverting Canal and/or Calaveras River is at times minimal, it is reasonable to assume that the stream water originating from the Stockton Diverting Canal is lost by evaporation, flows downstream and percolates to groundwater providing a source of municipal and irrigation water supply.

d. *Freshwater Replenishment*

There are periods of hydraulic continuity between the Stockton Diverting Canal and the Calaveras River. During periods of hydraulic continuity, the Stockton Diverting Canal contributes some or all of the water quantity and may impact the quality of water flowing downstream in the Calaveras River.

e. *Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources*

The Basin Plan (Table II-1) designates the Calaveras River as being a cold freshwater habitat. The Stockton Diverting Canal exchanges water with the Calaveras River, diverting water from Mormon Slough, which originates from the Calaveras River, back into the Calaveras River. There is aquatic habitat in the Stockton Diverting Canal and hydraulic continuity between the Canal and Calaveras River from the point of discharge from Outfall 001 to where the Canal discharges into the Calaveras River. Pursuant to the Basin Plan (Table II-1, Footnote (2)), and the presence of cold water aquatic habitat in the Stockton Diverting Canal, the cold designation is applicable to the Stockton Diverting Canal. The cold water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/L (ppm). This approach recognizes that, if the naturally occurring in-stream dissolved oxygen concentration is below 7.0 mg/L (ppm), the Discharger is not required to improve the naturally occurring level.

Upon review of the flow conditions, habitat values, existing and potential beneficial uses of the Calaveras River, and the facts described above, the Regional Water Board finds that the beneficial uses identified in the Basin Plan for the Calaveras River are applicable to the Stockton Diverting Canal.

2. **Antidegradation Policy.** Section 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. As discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.) the discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution 68-16.

3. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l)

prohibit backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Compliance with the anti-backsliding requirements is discussed in Section IV.D.3.

4. **Storm Water Requirements.** USEPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges associated with industrial activity. Hazardous waste treatment, storage or disposal facilities are applicable industries under the storm water program and are obligated to comply with the Federal Regulations.

5. **Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

D. Impaired Water Bodies on CWA 303(d) List

1. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 30 November 2006 USEPA gave final approval to California's 2006 Section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as "*...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.).*" The Basin Plan also states, "*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*" The Stockton Diverting Canal is not listed as a water quality limited segment; however, the Stockton Diverting Canal flows directly into the southern portion of the Delta Waterways, which is listed in the 303(d) list as impaired for: chlorpyrifos, DDT, diazinon, electrical conductivity, exotic species, group A pesticides, mercury, and unknown toxicity.

2. **Total Maximum Daily Loads.** An applicable Total Maximum Daily Load (TMDL) for diazinon and chlorpyrifos has been adopted by the Regional Water Board and approved by USEPA for the Sacramento-San Joaquin Delta Waterways and tributaries. However, there are no wasteload allocations applicable to the Facility's discharge.

E. Other Plans, Polices and Regulations – NOT APPLICABLE

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.

The Federal CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 CFR, §122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 CFR §122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.*" Federal Regulations, 40 CFR, §122.44(d)(1)(vi), further provide that "[w]*here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits.*"

The CWA requires point source discharges to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations: 40 CFR §122.44(a) requires that permits include applicable technology-based limitations and standards, and 40 CFR §122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Regional Water Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives") that specifies that the Regional Water Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives.*" This Policy complies with 40 CFR §122.44(d)(1). With respect to narrative objectives, the Regional Water Board must establish effluent limitations using one or more of three specified sources, including (1) USEPA's published water quality criteria, (2) a proposed state criterion (*i.e.*, water quality objective) or an explicit state policy interpreting its narrative water quality criteria (*i.e.*, the Regional Water Board's "Policy for Application of Water Quality Objectives")(40 CFR §§122.44(d)(1) (vi) (A), (B) or (C)), or (3) an indicator parameter. The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). The Basin Plan requires the application of the most stringent objective necessary to ensure that surface

water and groundwater do not contain chemical constituents, discoloration, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Water Board may apply limits more stringent than MCLs.

A. Discharge Prohibitions

1. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited

2. As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Water Board's prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.

3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

4. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

B. Technology-Based Effluent Limitations

1. Scope and Authority

The CWA requires that technology-based effluent limitations are established based on several levels of controls:

- Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

- Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

- Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

- New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and section 125.3 of the Code of Federal Regulations authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the permit writer must consider specific factors outlined in section 125.3.

2. Applicable Technology-Based Effluent Limitations

a. **Flow.** The groundwater treatment facility is designed to treat a maximum flow up to 0.94 mgd. As stated above, technology-based effluent limitations are established on a case-by-case basis using BPJ. Therefore, a technology-based effluent limitation for flow is established in this Order to monitor the performance of the groundwater treatment system from the standpoint of volumes being treated. Order No. R5-2003-0030 established a maximum daily discharge flow at 0.94 mgd (treatment plant capacity), and a monthly average discharge flow at 0.72 mgd. This Order retains the maximum daily and the average monthly flow rates.

b. **Arsenic, Total Chromium and Hexavalent Chromium.** The groundwater being treated contains concentrations of arsenic, total chromium and hexavalent chromium that, if left untreated, would exceed water quality based effluent limitations calculated for this discharge. Because treatment has been consistently effective, effluent concentrations do not demonstrate that reasonable potential exists to exceed the WQBEL. However, since these constituents exist in the treatment facility influent, effluent limitations set at the calculated WQBELs are included in the permit in accordance with Section 1.3, Step 7 of the SIP.

Summary of Technology-based Effluent Limitations
Discharge Point No. 001

Table F-3. Summary of Technology-based Effluent Limitations

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	10	--	--	--
Chromium, Total Recoverable	µg/L	50	--	--	--
Chromium (VI)	µg/L	5.7	16.3	--	--
Flow	mgd	0.72	0.94	--	--

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

As specified in section 122.44(d)(1)(i), permits are required to include WQBELs for pollutants (including toxicity) that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an in-stream excursion above any state water quality standard. The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. **Receiving Water.** The Upper Mormon Slough drainage course originates from the Calaveras River near Bellota. The Upper Mormon Slough drainage course then flows west-southwest from Bellota, south of the Calaveras River. The Stockton Diverting Canal is an engineered drainage which re-connects Upper Mormon Slough to the Calaveras River on the east side of Stockton. From approximately October to April each year, the East Stockton Water District dams the Calaveras River at its fork with Upper Mormon Slough, diverting flows through Upper Mormon Slough and the Stockton Diverting Canal. The beneficial uses of the receiving water are described above in Section III.C.1 of this Fact Sheet.

b. **Hardness.** While no effluent limitation for hardness is necessary in this Order, hardness is critical to the assessment of the need for, and the development of, effluent limitations for certain metals. The CTR and the NTR contain water quality criteria for seven metals that vary as a function of hardness, the lower the hardness the lower the water quality criteria. The hardness-dependent metal criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc. The

equation describing the total recoverable regulatory criterion, as established in the CTR, is as follows:

CTR Criterion = $e^{m[\ln(H)]+b}$ (Equation 1)

Where:

H = Hardness
b = metal- and criterion-specific constant
m = metal- and criterion-specific constant

The constants "m" and "b" are specific to both the metal under consideration, and the type of total recoverable criterion (i.e. acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The relationship between hardness and the resulting criterion in Equation 1 can exhibit either a downward-facing (i.e., concave downward) or an upward-facing (i.e., concave upward) curve depending on the values of the criterion-specific constants. The curve shapes for acute and chronic criteria for the metals are as follows:

Concave Downward: cadmium (chronic), chromium (III), copper, nickel, and zinc

Concave Upward: cadmium (acute), lead, and silver (acute)

Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, "floating" effluent limitations that are reflective of actual hardness conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. Recent studies indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not protective of the receiving water under various mixing conditions. The Regional Water Board has evaluated these studies and concurs that for some parameters the beneficial uses of the receiving water are best protected using the lowest hardness value of the effluent. For some parameters, the use of the lowest hardness value of the effluent and either lowest or highest hardness value of the receiving water is the most protective.

For those contaminants where the regulatory criteria exhibit a concave downward relationship as a function of hardness, use of the lowest recorded effluent hardness for establishment of water quality objectives is fully protective of all beneficial uses regardless of whether the effluent or receiving water hardness is higher. Use of the lowest recorded effluent hardness is also protective under all possible mixing conditions between the effluent and the receiving water (i.e., from high dilution to no dilution). The lowest effluent hardness value of 85 mg/L as $CaCO_3$ was reported; however, out of 53 effluent data samples taken between June 2003 and December 2007 only one sample was less than 100 mg/L and